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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,599	03/18/2005	Michel Lecomte	20513-00607-US	1793

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EXAMINER	
MONDT, JOHANNES P	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/510,599	LECOMTE, MICHEL	
	Examiner	Art Unit	
	Johannes P. Mondt	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *2-10 and 12-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/12/04*.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

With reference to the Interview Summary herewith enclosed, the office action mailed 10/10/06 is herewith withdrawn and replaced by the following office action (in the withdrawn office action, counter to indication on PTO-326 and heading, the claims examined should have been indicated to be claims 5 and 11, with apologies by the examiner).

Election/Restrictions

1. ***Claims 1-4, 6-10 and 12-14*** have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method invention (claims 1-4) and non-elected Species (according to statement made by applicant in compliance with election-of-species requirement, that elected Species 1 is readable, in addition the independent claim 5 (the latter is examiner's assumption which he subsequently verified), on claims 11, 13 and 14 only, Species A, readable on claims 5-14, Species a readable on claims 5-14, Species β readable on claims 5-14 Species (i) readable on claims 5-14, Species H1 readable on claims 5-14, and Species N1 readable on claims 5-12), there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/9/06 with follow-up after notification of nonresponsive, filed 9/15/06.

Information Disclosure Statement

The examiner has considered the items listed in the Information Disclosure Statement filed 10/12/04. A signed copy of Substitute Form PTO-1449 is herewith enclosed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. ***Claims 5 and 11*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Griebentrog et al (GB 2 050 679 A) (see IDS filed 10/12/04) in view of Nathenson et al (4,842,054).

Griebentrog et al teach (Figures 1 and 3) a device *capable of* producing electricity from the heat produced in the core (within 1) of at least one high-temperature nuclear reactor 1 comprising a primary circuit (i.e., closed circuit through 1 and 6, see page 3, lines 22-23) in which there circulates a first heat-exchange gas (*helium* gas, see page 3, l. 22) *capable of* cooling said core of said high-temperature reactor (examiner takes official notice heat is inherently produced in the core of any nuclear reactor, and that removal of heat in the high-temperature reactor, - as is evidently effected by said close circuit from the fact that said closed circuit runs through the high-temperature reactor (loc.cit.)), said primary (closed) circuit cools the core through thermal diffusivity), a gas turbine 8 coupled to an electric generator 9 via a shaft (see Figure 1) (see page 3, l. 42-46) and a secondary circuit (page 3, l. 23-25; through duct 7) *capable of* circulating a second heat exchange gas ("compressed gas" thereof, see page 3, l. 23-25) on which the gas turbine is inserted (see Figure 1), characterized in that it also comprises at least one intermediate heat exchanger 6 having a primary portion connected to the primary

circuit of the high-temperature nuclear reactor 1 (page 3, l. 22-30 and Figure 1) and a second portion to the secondary circuit (heat exchanger 6 overlaps both with 1 and the outside of 1 while being connected through duct 7; see Figure 1) and inherently *capable of* heating the second exchange gas on the basis of the heat produced in the reactor core and transported by the first heat exchange gas (namely: when conditions on the outside of 1 are lower than on the inside, which is generally true in operation).
The intermediate heat exchanger 6 and the gas turbine 2 have characteristics adapted to the use of helium as first heat-exchange gas (as mentioned above, the first heat exchange gas *is helium*) and of a mixture of helium and nitrogen (N_2) as second heat-exchange gas (page 2, l. 48-55).

Griebentrog et al do not necessarily teach the further limitations of (a) "a tertiary circuit for circulation of water and steam on which is disposed at least one steam generator and at least one steam turbine" such that said steam generator comprises (b) "a secondary portion connected to the tertiary steam and steam circuit to receive water at the inlet and to provide steam at the outlet to the steam turbine and a primary portion connected to the secondary circuit to receive the second exchange gas after it issues from the gas turbine".

However, it would have been obvious to include said further limitations in view of Nathenson et al, who, in a patent on high temperature nuclear reactor heat production with two high-temperature heat exchange circuits 14 and 20 (title, abstract and col. 5, l. 59 – col. 6, l. 2 and col. 2, l. 57-62), hence analogous art, teaches a final steam loop 34 (col. 6, l. 17-25) meeting the limitation ad (a) above, i.e., "tertiary circuit", *capable of*

"circulating water and steam" on which is disposed at least one steam generator 24 and at least one steam turbine 26 (col. 6, l. 17-25), while combination of the teaching by Nathenson et al with the invention by Griepentrob et al implies limitation ad (b) above, i.e., "a secondary portion connected to the tertiary steam and steam circuit to receive water at the inlet and to provide steam at the outlet to the steam turbine (means: condenser 30; loc.cit.) and a primary portion heat exchanger enabling the steam generator 24; cf. Figure 1 and loc.cit.) connected to the secondary circuit to receive the second exchange gas after it issues from the gas turbine".

Motivation to include the teaching by Nathenson et al in the device by Griepentrob et al derives from the teaching of the improvement of the electrical efficiency of a further reduction of the temperature (col. 2, l. 62-64) and, furthermore, in the less demanding mechanical design parameters at reduced operating temperature (col. 2, l. 64-66). Finally, the introduction of the tertiary circuit enables a transformation of the usable energy in its most conventional form of steam thus being able to drive conventional generators of electricity.

Finally, the claim language is replete with instances referring to function, e.g., "for producing" (line 1), "for circulation" (line 4) and "for circulation" (line 9), "to receive water" and "to provide steam" (both lines 13). Applicant is reminded that intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim. In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963).

On claim 11: in the combined invention the device comprises a moderate temperature heat exchanger (comprising and enabling steam generator 24 in Nathenson et al, Figure 1) (moderate for its temperature is lower than that in heat exchanger 6 in Griepentrob et al) having a first portion connected to secondary circuit (which in Nathenson et al is circuit of intermediate loop 20 (Figure 1)) that *can be* (and is) *used* for circulation of the second exchange fluid in the moderate temperature heat exchanger (6 in Griepentrob et al, 16 in Nathenson et al (col. 5, l. 61 and Figure 1), and a secondary portion in which there circulates a liquid such as water (water is input into the steam generator) that *may be used* in an auxiliary installation such as an urban heating circuit or seawater desalination plant.

In reference to the claim language referring to "can be used" and "may be used" (in italics for clarity above), intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In re Casey,152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963). In the underlying case, said secondary circuit is actually used for the claimed purpose and a forteriori is capable of being used in that manner, while electricity from steam of capable of being used for any variety of purposes, the limitation thus clearly being without any patentable weight.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Schmitt et al (4,761,260).

Koutz (4,576,783) (previously made of record).

Kapich (4,413,348) (previously made of record).

Sawle (3,218,802) (see IDS filed 10/12/04).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM
September 30, 2006

Patent Examiner:

Johannes Mondt (Art Unit: 3663)